

NON-PUBLIC?: N
ACCESSION #: 9202270195
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Byron, Unit 2 PAGE: 1 OF 04

DOCKET NUMBER: 05000454

TITLE: Unit 1 Reactor Trip due to Turbine/Generator Trip caused by Anti-Motoring
EVENT DATE: 01/29/92 LER #: 92-001-00 REPORT DATE: 02/21/92

OTHER FACILITIES INVOLVED: Byron Unit 2 DOCKET NO: 05000455

OPERATING MODE: 1 POWER LEVEL: 093

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Jeff Penick, Tech Staff Engineer TELEPHONE: (815) 234-5441
Ext. 2656
T. Didier, Operating Engineer
Ext. 2216

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On 01/29/92, Unit One Reactor tripped as a result of a Turbine trip from an anti-motoring signal. Maintenance was being performed on a valve labelled 1MS096B, which isolates pressure transmitter 1PT-506. This valve was not properly labelled and in fact was 1MS096C which isolated 1PDS-T0071, the anti-motoring relay. This isolation resulted in low differential pressure signal across the High Pressure Turbine and actuated the anti-motoring Turbine trip and thus the Reactor trip occurred.

The incorrect valve tags were removed and replaced with correct tags. The other unit was also found to have incorrect valve tags. The incorrect tags were replaced except for one located in an inaccessible

area. This will be replaced at a later date.

This event is reportable in accordance with 10CFR50.73(a)(2)(iv).

(0882R/VS-2)

END OF ABSTRACT

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A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 01-29-92 / 0901

Unit 1 MODE 1 - Power Operation Rx Power 93.5%
RCS AB! Temperature/Pressure NOT / NOP

B. DESCRIPTION OF EVENT:

At 0855, the high pressure Turbine impulse pressure transmitter, 1PT506 was defeated and the Steam Dumps were placed in steam pressure mode per Byron Abnormal Operating Procedure, BOA INST-2 in preparation for repair of a leaking instrument isolation valve. Limiting Condition for Operation Action Requirement (LCOAR) 3.1-1a was entered. The valve to be repaired was labelled 1MS096B, isolation to 1PI-MS002 & 1PI-MS001. Per the piping diagrams this valve isolated the 1PT506 pressure transmitter. Between 0855 and 0859, the valve was closed to isolate the steam supply in preparation for repair of the valve. Because of the extreme heat and steam leakage conditions near the valve, contractor personnel were allowed to isolate the valve under the direction of the Operating Department.

At 0859 on 1-29-92 the Unit 1 Nuclear Station Operator (NSO) (licensed) observed Reactor Coolant System (RCS) AB! temperature and pressure decreasing. It was also noted that the impulse pressure feedback loop to the Turbine Digital Electro-Hydraulic Control (DEH) JJ! had rejected. Main Generator load had increased approximately 70 Megawatts (MWe).

At 0901 the Unit 1 Reactor tripped as a result of a Turbine trip above 30% power (P-8). Byron Emergency Procedure BEP-0, "Reactor Trip or Safety Injection" was entered and actions were performed in response to the trip. At 0904 BEP-0 was exited and BEP ES-0.1 "Reactor Trip Response" was entered. At 0955 BEP ES-0.1 was exited and transition to BGP 100-5, "Plant Shutdown and Cooldown", was

made. All operator actions were correct in this event and helped minimize the plant transient caused by the trip. This event was reported per 10CFR50.72(b)(2)(ii) - RPS Actuation.

The Turbine Trip was caused by an Anti-Motoring signal, which is actuated based on differential pressure between the High-Pressure Turbine (HP) TA! First Stage (Impulse) and Exhaust. A decrease in apparent first stage steam pressure caused the Impulse/Exhaust differential pressure to drop below the 16.4 psid setpoint. This actuated the Anti-Motoring trip pressure switch, 1PDS-T0071 (63/AM2), initiating the Anti-Motoring trip sequence. The switch actuation energized the 60 second time delay relay (63/TDR) and, following the time delay, the 20-1/AST solenoid was energized dumping Auto-Stop Oil (ASO) TD/TG! and the Main Generator TB! Reverse Power Trip was armed. As ASO pressure decreased the Diaphragm Interface Valve (DIV) opened, releasing Electro-Hydraulic (EH) TG! fluid and tripping the turbine. The Main Generator trip followed from reverse power.

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C. CAUSE OF EVENT

The cause of this event was incorrect tagging of the isolated valve. The valve to be repaired was tagged as 1MS096B. According to Plant Piping Diagrams, 1MS096B was the isolation valve to the Impulse Pressure Transmitter 1PT506, the Steam Dump Control System, and two pressure indicators. This valve was tagged incorrectly and was actually 1MS096C. This valve isolates the 1PDS-T0071 pressure switch which feeds the Anti-Motoring Turbine trip, the pressure transducer which feeds the DEH impulse pressure input, and a pressure indicator.

The DEH computer was controlling load in Operator Automatic mode and had the impulse pressure feedback loop in service. This feedback loop corrects governor valve position based on changes in impulse pressure to maintain a constant impulse pressure. As the 1MS096C valve was closed, pressure in the line to the DEH impulse pressure transducer dropped. The DEH sensed the loss of pressure and opened the governor valves to maintain impulse pressure. The governor valves opened, but the impulse pressure signal continued to decrease. When the error between valve position and pressure reached 30% the DEH rejected the feedback loop, halting the ramp.

Pressure continued to decrease and when pressure dropped below the 16.4 psid setpoint the Anti-Motoring Trip sequence was started. The Turbine Trip/Reactor Trip followed 60 seconds later.

D. SAFETY ANALYSIS:

There was no effect on the health and safety of the plant or public. All systems functioned properly. The turbine trip functioned as designed and the unit was safely shutdown. Had this event occurred under a more severe set of initial conditions, there would still be no effect.

E. CORRECTIVE ACTIONS

The incorrect valve tags were removed and replaced with correct tags. Inspections of the Unit 2 valves revealed incorrect valve tags also. These have all been replaced except one which was inaccessible. This is being tracked by NTS item 454-200-92-01200-01. A Drawing Change Request has been initiated on the Control and Instrument Drawing to clarify which valves isolate which instruments. An Operating Engineer Daily Order was also issued requiring operator supervision during valve manipulation by non-operating personnel.

F. RECURRING EVENTS SEARCH AND ANALYSIS: (Cont)

a) EVENT SEARCH (DIR, LER)

DVR 06-02-087-034 Reactor Trip from Turbine Trip Above (LER 87-005) 10% Power due to Spurious Main Generator Motoring Signal with an Unknown Cause.

No root cause was found for LER 87-005. The switch was replaced and has functioned properly since.

b) INDUSTRY SEARCH (OPEX's NPRDS)

None

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F. RECURRING EVENTS SEARCH AND ANALYSIS: (Cont)

c) NWR

None

d) ANALYSIS

None

G. COMPONENT FAILURE DATA:

MODEL MFG PART

MANUFACTURER NOMENCLATURE NUMBER NUMBER

None

H. OTHER RELATED DOCUMENTS:

None.

I. EFFECTIVENESS REVIEW:

None scheduled.

J. ADDITIONAL DATA:

a) Affected Technical Specification: None

b) Procedures: BEP-0 "Reactor Trip or Safety Injection"
BEP ES-0.1 "Reactor Trip Response"
BGP 100-5 "Plant Shutdown and Cooldown"

c) Cause Code: BD1

d) Equipment Involved:

e) Other: Reactor Trip, Turbine Trip, Anti-Motoring Signal Wrong
Equipment

(0882R/VS-5)

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Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road

Byron, Illinois 61010

February 21, 1992

Ltr: BYRON 92-0127

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv).

This report is number 92-001; Docket No. 50-454.

Sincerely,

R. Pleniewicz
Station Manager
Byron Nuclear Power Station

RP/CW/mw

Enclosure: Licensee Event Report No. 92-001

cc: A. Bert Davis, NRC Region III Administrator
W. Kropp, NRC Senior Resident Inspector
INPO Record Center
CECo Distribution List

(0882R/VS)

*** END OF DOCUMENT ***
